

What is claimed is:

- 09939643-0000001
1. A shape memory foam material comprising:  
a base foam material; and  
a thermoplastic substance impregnated in said base  
foam material and having a melting point lower than that of  
5 said base foam material,  
wherein said shape memory foam material is a  
composite material obtained by compressing said base foam  
material and said thermoplastic substance, and  
wherein a compressed state of said shape memory  
10 foam material is retained in a room temperature by a  
hardened product of said thermoplastic substance existing  
at least in the surface layer part thereof, and  
wherein the compressed state is released by  
softening said hardened product of said thermoplastic  
15 substance by heating.

2. The shape memory foam material according to claim 1,  
wherein a volume of said base foam material is recovered in  
70% or more of an uncompressed state thereof by heating.

3. The shape memory foam material according to claim 1,  
wherein a thickness of said base foam material is retained  
in a half or less of an uncompressed state thereof in a  
room temperature.

4. The shape memory foam material according to claim 1, wherein said base foam material is made of one of a thermosetting resin and a cross-linked rubber.

5. The shape memory foam material according to claim 1, wherein said base foam material is made of urethane.

6. The shape memory foam material according to claim 1, wherein said base foam material in an uncompressed state has a water absorption coefficient of  $0.2 \text{ g/cm}^3$  or more, and a bulk density of  $100 \text{ kg/m}^3$  or less.

7. The shape memory foam material according to claim 1, wherein said thermoplastic substance is a thermoplastic resin wherein at least one of a glass transition point, a melting point, and a softening temperature is less than  
5 120°C.

8. The shape memory foam material according to claim 7, wherein said thermoplastic resin contains at least one selected from the group consisting of an acrylate, a styrene, and a vinyl acetate as a monomer unit.

9. A method of producing a shape memory foam material, comprising the steps of:

impregnating a base foam material in a

thermoplastic substance;

5 heating and compressing said impregnated base foam material at a temperature the same as or higher than a softening temperature of said thermoplastic substance as well as less than a softening temperature of said base foam material;

10 cooling down said impregnated base foam material while retaining the compressed state; and  
releasing the pressure after cooling.

10. A soundproof cover for an automobile engine, comprising a shape memory foam material including:

a base foam material; and

5 a thermoplastic substance impregnated in said base foam material and having a melting point lower than that of said base foam material,

wherein said shape memory foam material is a composite material obtained by compressing said base foam material and said thermoplastic substance, and

10 wherein a compressed state of said shape memory foam material is retained in a room temperature by a hardened product of said thermoplastic substance existing at least in the surface layer part thereof, and

15 wherein the compressed state is released by softening said hardened product of said thermoplastic substance by heating.